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IS : 5348 - 1981

*Indian Standard*  
SPECIFICATION FOR  
STAPLES  
( *First Revision* )

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**INDIAN STANDARDS INSTITUTION**  
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**( First Revision )**

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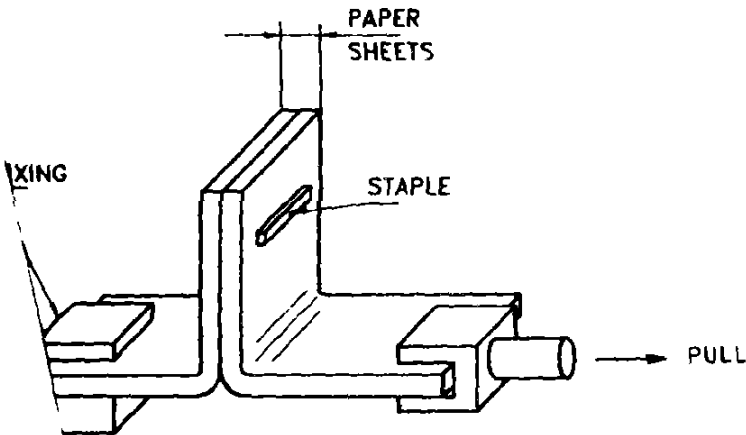


FIG 2 HOLDING POWER TEST FOR STAPLE

(LM 15)

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# Indian Standard

## SPECIFICATION FOR STAPLES

### ( First Revision )

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( Continued from page 1 )

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*Indian Standard*  
SPECIFICATION FOR  
STAPLES  
( *First Revision* )

**0. FOREWORD**

**0.1** This Indian Standard ( First Revision ) was adopted by the Indian Standards Institution on 10 November 1981, after the draft finalized by the Fasteners for Consumer Goods Sectional Committee had been approved by the Consumer Products and Medical Instruments Division Council.

**0.2** This standard was first published in 1969 and is being revised to incorporate modifications in respect of dimension and material, consequent upon publication of IS : 4224-1972\*.

**0.3** This standard contains clauses 7.1 and 9.1 which call for agreement between the purchaser and the supplier and which permit the purchaser to use his option for selection to suit his requirement.

**0.4** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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**1. SCOPE**

**1.1** This standard covers the requirements of staples for use in stapling machines.

**2. TYPES**

**2.1** The staples shall be of the following types:

- a) Light duty, and
- b) Heavy duty.

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\*Specification for steel wire office staples, pins and clips ( *first revision* ).

†Rules for rounding off numerical values ( *revised* ).



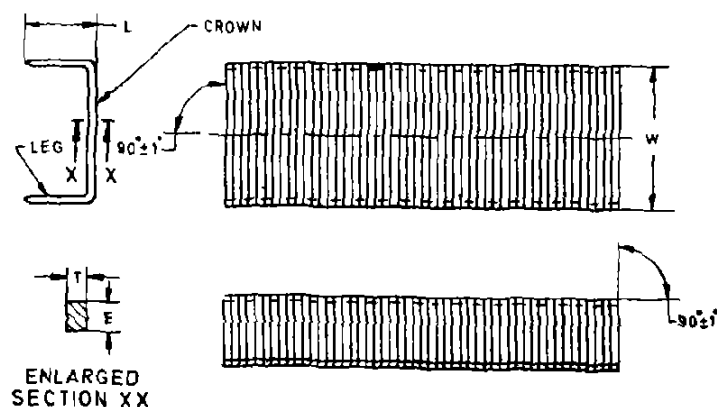
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### 3. MATERIAL

**3.1** The staple shall be preformed from tinned, galvanized or copper-coated steel conforming to IS : 4224-1972\*.

### 4. SHAPE AND DIMENSIONS

**4.1** The shape and dimensions of the two types of staples are given in Fig 1.



TYPE	W ± 0.1	L	AFTER FABRICATION	
			T ± 0.05	E ± 0.05
Light Duty	9.3	4.8 ± 0.2	0.35	0.50
	13.0	6.0 ± 0.2	0.45	0.70
Heavy Duty	13.0	8.0 ± 0.2	0.55	0.75
	13.0	10.0 ± 0.3	0.55	0.80
	13.0	12.0 ± 0.3	0.55	0.80
	13.0	15.0 ± 0.4	0.55	0.80
	13.0	17.0 ± 0.4	0.55	0.80
	13.5	16.0 ± 0.4	0.55	0.75

All dimensions in millimetres.

FIG. 1 STAPLES

### 5. WORKMANSHIP AND FINISH

**5.1** The staples shall be preformed and cemented together, one behind the other, in the form of a channel. Both ends of staples shall have either blunt or chiselled point ends. The cementing of staples shall be

\*Specification for steel wire office staples, pins and clips (first revision)

smooth and even, such that the staples adhere to each other without loosening in handling while being fitted into the stapler. Also the cementing shall be such as to afford easy exit of the staples from the vertical chute without clogging and jamming the stapler. The temper of the wire shall be such as to permit penetration and clinching to a firm seat without buckling or fracturing of the crown or leg when tested as specified in 6.1.1 and 6.1.2.

## 6. TESTS

### 6.1 Performance Tests

**6.1.1 Light Duty Staples** — A complete magazine of light duty staples shall be inserted in a light duty stapler or plier type stapler to produce the standard clinch. Fifty staples shall be driven and clinched to a firm seat through 15 sheets for 4.8 mm leg staples and 20 sheets for 6 mm leg staples of 50 g/m<sup>2</sup> white printing paper conforming to IS : 1848-1971\*. The staple shall penetrate and clinch to the set of sheets without buckling or fracturing of the crown or leg and shall not show any malformation.

**6.1.2 Heavy Duty Staples** — A complete magazine of heavy duty staples shall be inserted in a heavy duty stapler. Twentyfive sheets of 50 g/m<sup>2</sup> white printing paper conforming to IS : 1848-1971\* shall be used for 8 mm leg staples, 40 sheets for 10 mm leg staples, 80 sheets for 12 mm leg staples, 120 sheets for 15 mm leg staples and 160 sheets for 16 mm and 17 mm leg staples. The staples shall penetrate and clinch to a firm seat without buckling or fracturing of the crown or leg and shall not show any malformation.

**6.1.3 Holding Power Test** — The number of 50 g/m<sup>2</sup> white printing paper conforming to IS : 1848-1971\* sheets as mentioned below shall be used for this test. The set of sheets shall be folded and stapled. One end of the set of sheets shall be fixed and on the other a pull is applied as shown in Fig. 2. The staples shall not bend or get damaged when the pulls as mentioned below are applied:

Staple ( Leg Size ) mm		No. of 50 g/m <sup>2</sup> White Printing Paper Sheets	Pull kgf (N)
Light duty	4.8	8	1.0 (10)
	6.0	10	2.0 (20)
Heavy duty	8.0	13	2.4 (24)
	10.0	20	2.8 (28)
	12.0	40	3.4 (34)
	15.0	60	4.0 (40)
	16.0	80	4.6 (46)
	17.0	80	4.6 (46)

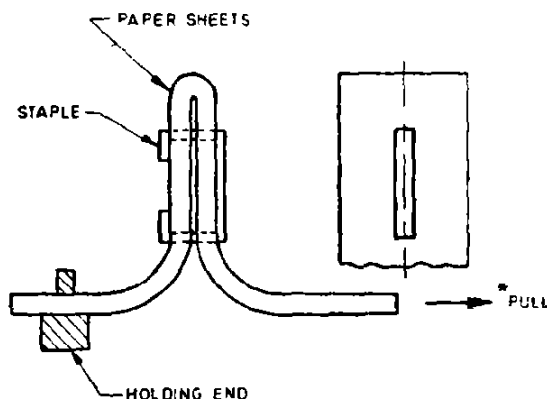
\*Specification for writing and printing papers ( first revision )

**IS : 5348 - 1981**

**6.2 Corrosion Resistance Test** — The staples shall be immersed in an aqueous solution of 5 percent sodium chloride at room temperature for 5 hours. The staples shall not show any sign of rusting.

**7. SAMPLING**

**7.1** Unless otherwise agreed to between the purchaser and the supplier, the sampling procedure given in Appendix A shall be followed.



**FIG. 2** HOLDING POWER TEST FOR STAPLE

**8. MARKING**

**8.1** Each packet containing 1 000 staples shall be marked with manufacturer's name, initials or trade-mark.

**8.1.1** Each packet may also be marked with the ISI Certification mark.

**NOTE** — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

**9. PACKING**

**9.1** The staples shall be packed as agreed to between the purchaser and the supplier.

## **A P P E N D I X   A**

( *Clause 7.1* )

### **SAMPLING AND CRITERIA FOR CONFORMITY OF STAPLES**

#### **A-1. LOT**

**A-1.1** In any consignment, all the packets containing the staples of the same type and size, manufactured by the same factory, during the same period and under similar conditions of production shall be grouped together to constitute a lot.

**A-1.2** Number of packets to be selected from each lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 1.

**A-1.2.1** These packets shall be selected from the lot at random. In order to ensure the randomness of selection, procedure given in IS : 4905-1968\* may be followed.

#### **A-2. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY**

**A-2.1** From each of the selected packets, 3 magazines shall be selected at random, so that the number of magazines selected from each lot shall be in accordance with col 1 and 3 of Table 1. The magazines so selected from each lot shall then be divided into 2 groups at random, one containing two-third of magazines ( for dimensional requirements ) and another containing one-third of magazines ( for performance test ).

**A-2.2** From each of the magazines selected in **A-2.1** for dimensional requirements, select 2 staples at random, so that the number of staples to be selected from each lot shall be in accordance with col 1 and 5 of Table 1. These staples shall be examined for dimensional requirements. A staple failing to satisfy these requirements shall be termed as defective. The lot shall be considered as conforming to dimensional requirements if the number of defectives found in the sample is less than or equal to corresponding permissible number of defectives ( see col 6 of Table 1 ).

**A-2.3** The lot which has been found as conforming to dimensional requirements, shall then be tested for performance tests.

**A-2.3.1** For the requirements given in **6.1.1** or **6.1.2**, the number of magazines as selected in **A-2.1** and permissible number of defectives shall be in accordance with col 7 and 8 of Table 1.

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\*Methods for random sampling.

TABLE 1 SAMPLE SIZE AND PERMISSIBLE NUMBER OF DEFECTIVES

( *Clauses A-1.2, A-2.1, A-2.2, A-2.3.1 and A-2.3.2* )

TABLE 1 SAMPLE SIZE AND PERMISSIBLE NUMBER OF DEFECTIVES (Clauses A-1.2, A-2.1, A-2.2, A-2.3.1 and A-2.3.2)									
LOT SIZE (NUMBER OF PACKETS)	SAMPLE SIZE		FOR DIMENSIONAL REQUIREMENTS		PERFORMANCE TEST ( see 6.1.1 & 6.1.2 )			HOLDING POWER TEST	
	Number of Packets	Number of Maga- zines	Sample Size (No of Maga- zines)	Sample Size (No of Staples)	Permissible No. of Defectives	Sample Size (No of Maga- zines)	Permissible No of Defectives	Sample Permissible Size (No. of Defectives Staples)	No of Defectives
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Up to 100	5	15	10	20	1	5	0	5	0
101 to 300	8	24	16	32	2	8	0	8	0
301 to 1 000	13	39	26	52	3	13	0	13	0
1 000 and above	20	60	40	80	5	20	1	20	1

**IS : 5348 - 1981**

**A-2.3.2** For holding power test, the number of staples and the permissible number of defectives are given in col 9 and 10 of Table 1.

**A-2.4** A lot which has been found as conforming to dimensional requirements and performance tests shall then be tested for corrosion resistance. For this purpose, 20 staples shall be selected from the lot at random and subjected to this test. The lot shall be considered as conforming to the requirement if none of the staples show any sign of rusting.

**A-2.5** The lot shall be accepted if **A-2.2**, **A-2.3** and **A-2.4** are satisfied; otherwise the lot shall be rejected.

## INTERNATIONAL SYSTEM OF UNITS ( SI UNITS )

### Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

### Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

### Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg m/s <sup>2</sup>
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V s
Flux density	tesla	T	1 T = 1 Wb/m <sup>2</sup>
Frequency	hertz	Hz	1 Hz = 1 c/s (s <sup>-1</sup> )
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m <sup>2</sup>

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